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ABSTRACT

This paper outlines strategies being pursued at Rutgers University for making future vocational education teachers more responsive to disadvantaged students. Methods of affecting changes in teachers' attitudes and teaching techniques are discussed. The mastery approach is described as a teaching method especially effective with disadvantaged students and applications of mastery learning to vocational education are reviewed. The need for vocational teachers to become involved in educational service activities is also stressed. (APM)

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by C. William Garner

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EXPECTATIONS OF VOCATIONAL TEACHER EDUCATION AND THE DISADVANTAGED*

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In determining what to say today about vocational teacher education and the related expectations in meeting the needs of the disadvantaged, I had a difficult time convincing myself to restrict my discussion to what we are trying to do at Rutgers rather than what teacher education should ideally be doing. This was not an easy argument since I (and I guess like many others) would like to take the podium to preach on "what should be" and to strike back at the critics who are insensitive to our efforts. But, alas, common sense ruled out and my stirring sermon will have to wait another day.

In discussing our program as well as immediate plans, I must begin by explaining the train of thought behind our efforts. By disadvantaged I mean those students who are academically disadvantaged for no apparent physical handicap, although they can have such a handicap. Also, the disadvantaged are often found to be economically and socially deficient, as well as a member of a minority group in our population.

The vocational program designed for the conventional student cannot be expected to be effective for the majority of these students without some exceptional ingredient; such as a dynamic teacher. There are several reasons for the need to accept this reality. First of all, many of these students come from a deprived environment. Martin Deutsch (1963) coined the term stimulus deprivation to describe the child's environment which has fewer stimuli that are related to the cognitive skills required in public education. Bloom (1964) claimed that such deprivation can account for approximately a difference of 20 points in IQ's between children from a deprived versus an abundant environment.

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Thus, many educators feel the achievement gap between children from the low income segment of our population, which is primarily minority, and the middle class population, which is primarily white, is the effect of this cultural deprivation. Numerous programs and related research projects have been designed to confront this issue, and the results have confirmed the fact that we must recognize this deprivation and compensate for it in our educational offerings, including vocational education (Miller, 1978).

In addition, our teachers must also recognize that children from disadvantaged environments come to our schools, whether in New Jersey or Kansas, with a background of experiences unlike the mainstream of society. For example, a child from a deprived environment will utilize certain behaviors in the classroom that are natural or learned in the streets, but not acceptable in the classroom. Such a student has to be taught that using such a behavior will not be accepted on the job or in a shop and taught to conduct themselves in other ways. However, the teacher must realize that the student's behavior has been developed over the years and is reinforced in their natural habitat. Vocational teacher educators must address this contradiction if our teachers are to succeed in changing student behavior; particularly since attitude is considered by many to be the primary reason for a failure on the job. Teacher educators must promote confluent education whereby lesson objectives contain both cognitive and affective goals, not only in the vocational teacher's classroom but also in their own courses for vocational teachers.

I could say much more about the characteristics and problems of the disadvantaged, but I think I have given you an indication of my point of reference. One of Piaget's (1970) concepts advocated that problems will develop in the classroom when the teacher does not fit the child's thinking ability. Piaget was not referencing the disadvantaged in the vocational shop, but I think that it is

relevant. Our vocational teachers and teacher educators must understand the disadvantaged and learn how these students think, and use that as their starting point.

Teacher Education Activities

What are some of the specific approaches that can be used by teacher educators? Again I will concentrate on the activities in which I am engaged and reference those which I would hope to be possible in my department in the near future.

First of all let us take an overall view of the list of activities and then I will elaborate on two of the activities in process. Due to time limitations, I will not go into detail but rather will try to give a basic understanding of the activity.

(Show overhead on Vocational Teacher Education Activities--
uncover one at a time. Copy is attached at end of paper.)

The top of the list identifies teaching methods. I will explain more precisely what is being done in this area. Essentially the conviction is to present teaching methods that meet the needs of all students, including the academically disadvantaged; and that meet the world of work requirements, which includes the ability to read, write, and do mathematics.

The second item on the list is attitude change. This must be a consideration in all teacher education courses, although we have one course which is required for certification by the state of New Jersey and specifically concerns human and intercultural relations. In this course, which is best taught in a seminar fashion, the objective is not only to present information about the complex society in which we live and the needs of the people therein, but it more importantly tries to show the vital role that the teacher plays. This course is not an easy course to teach and is controversial if the professor lays all of the cards on the table.

The next activity is leadership assistance. I, and some of my faculty, are attempting to provide assistance to state associations, schools, state officials, teachers, specialists, and so on, since we enjoy some flexibility in our jobs that others do not. Specifically, the attendance and participation in the state association, NJVESNP, is vital in order to mix with other educators with common interests. We also have an executive committee on the disadvantaged and this allows us to be more specific in our interests. I, and others, try to wave the flag, write up materials for meetings or articles for newsletters, serve on committees or panels, give presentations, and inform our students of what is taking place in the state. Too often teacher educators become campus-bound and out-of-touch. They must compel themselves to get off campus and put their talents and benefits to work.

Service is a very broad area that can include many endeavors. I will show one approach to service a little later. My only comment here, which also includes the next item, in-service, is that such activity cannot be a one-night stand in order to have any long lasting effect. We have tried one-shop in-service presentations and have found them to produce no lasting change. Two years ago I made several TV video tapes to be used for in-service workshops. While such an approach could be effective, they are not, since a more in-depth involvement is needed. As a result we are trying to offer on-going in-service work at vocational schools that attacks a specific problem in order to produce results. We cannot expect formal course work to provide all of the answers, particularly with such a complicated subject as the academically disadvantaged.

Career education designed for the disadvantaged is on the horizon for us. Along with the state department of education and NJVESNP, we intend to research the work in this area and come up with some proposals for implementation. We have career education without question in New Jersey. In fact, one semester is being required for high school

graduation. But, do we have any materials, programs, or research on career education aimed at the disadvantaged? One of our graduate students is completing a dissertation which I feel has a lot of promise. His study, among other things, concerns the locus of control in relation to the career choices of the disadvantaged. If what happens is what the pilot tells us is going to happen, then there is a lot of work to be done in the future.

The next item, interdisciplinary activities, I feel is a must in the future if we are to move into the next century with the rest of society and not behind it. We must cross discipline lines more easily in order to find answers to complex problems and to prepare teachers to deal with all facets in the classroom.

Last, but scattered throughout all of the above, is the need for research. We need applied research badly. We are in dire need of time, money, and manpower. While theoretical research is glamorous and specialization is convenient, we must approach research in a team effort, which includes inter-disciplinary arrangements on campus as well as team members from the public schools and state department. Educators must approach contemporary problems the same way as others do at universities, such as the medical profession, whereby specialists are brought in from related fields to find a solution to an ill of society and not just a recommendation for schools to consider.

Consequently, as you can see, the list is quite comprehensive and encompassing. While it is true that such efforts can be said to be needed in all areas, however, activities that work in serving the most difficult population, the disadvantaged, can be applied in other areas.

Specific Activities

As I mentioned, I will share with you briefly what we are doing in two of the just mentioned areas; namely, methods and service.

Methods

In working with vocational teachers on their methods of teaching, I am presently stressing two points. The first is that they must be concerned about students abilities in all areas, if they expect them to be truly employable. In other words, the vocational teachers must be sure that their students can read, write, and do basic math. These basic academic skills are terribly critical to survival in our society as well as performance on the job. As Michelangelo said, "The hand that follows intellect can achieve." When our graduates cannot read, write, or add and subtract, vocational education is blamed for it.

The academically disadvantaged are given this label because their basic academic skills are far below par. We have related reading, writing, and math materials for just about all occupations, but our teachers must be convinced to use them. We have tried using academic teachers, who typically are not vocationally oriented, to teach the basic skills to the disadvantaged students; but, the problem still exists. Since these students often relate to their shop teacher, that person has the promise of being more effective in convincing the disadvantaged student of the importance of learning to read, write, and do math. If the shop teacher acts like basic skills are not important, the student will feel likewise.

Such a suggestion is not a popular one and often I will receive great arguments or negative comments from vocational teachers. One teacher asked why he even had to be concerned with "these kids" in his shop and why they could not be placed in some special class. I explained that our society has a welfare problem and we are about the only ones who can truly solve this problem by being concerned with the whole child.

The second point in my methods presentation is that vocational teachers must use the mastery approach. Teaching all students in one group, which I see so often

in our vocational schools, is only effective with those students at the teacher's expected level of ability. I recently observed this method used by a teacher who had been teaching about six years. His class was unorganized and chaotic, and he really was only teaching those students who were capable and motivated. All I could think of at the time was that I wished all of my students, who are vocational teachers, were motivated to learn. What if I had the same attitude?

Consequently, I have been stressing the use of the mastery method in the teaching of the shop skills, as well as the basic academic skills in the shop. Incidentally, the use of the mastery method in the academic subjects may be easier than the vocational subject since the academic material is conveniently set up in the text books for a mastery class. A shop teacher, at least the ones I have observed around the country, can very easily take 15 to 20 minutes a day to work with students on one or two of the basic skills; that is if the teacher organizes the class properly.

The mastery approach that I advocate is not new or original, and is actually a spin-off from the mastery technique used in the elementary grades. In this method the teacher simply organizes the subject on ability levels and maintains that a student cannot go from one level to another unless the present level is mastered. However, to simplify the process I recommend that the class be organized in ability groups and the ability groups be moved through the levels. This may not be ideal, but it is practical.

The question is often asked what if a student only completes 75% of the class, or in other words does not master all levels. I explain that I would rather see the student master 75% of the subject than have that student go through an entire course and only understand 75% of it. At least with the mastery method, what the student completes will be completed properly. This will allow the student a firm

base to use in the future. However, reports on the use of mastery learning in the earlier grades claim that 75-90% achieve as much as the upper 25% do in a conventional classroom.

The process (as shown by the overhead-copy attached) in the mastery approach, which should be used for the vocational subject, reading, writing, and math, begins with an initial assessment of the student's ability through the use of a diagnostic test. The class is then divided into ability groups. There should not be more than four ability groups, and the beginner is recommended to use only two or three groups. For example, in the vocational subject area some students may need to begin with tool identification or basic psychomotor skills, while other students are quite aware of the tools and their functions, and have advanced psychomotor abilities. There also may be an in-between group advanced in one area and not another. Projects assigned to the students should also take these abilities into account. In the math area some students may not know their multiplication tables, while others are able to do fractions and decimals. In reading, the teacher will find some students reading below the fifth grade level while some can read above the ninth grade level.

After the initial assessment and formation of groups, the teacher will give group instruction and then have the students work on skill building or learning exercises. In shop the skill building would be actual practice, while math would be the use of work sheets, and reading-writing would be reading an article related to the vocational subject and then writing about what the article says. During the small group instruction, which may not be used for each class but rather once a week, the other students work on their learning exercises. When group instruction is not used, the teacher can help students on an individual basis or check their learning exercises. Homework need not be depended upon, which is an advantage in many ways for the disadvantaged.

After instruction and individual work sessions, the students are given an interim test to assess their abilities. The tests are corrected and remedial work begins, as shown in the overhead. After additional group instruction and individual learning exercises are given to the students, they are examined again. Dependent upon the results of the tests, remediation may be repeated; if not, the students take the test to exhibit mastery. After mastery of the skill or subject matter is exhibited by 100% of the students in the ability group, the group then moves to the next level of learning. If some students cannot exhibit mastery and may have been placed in the wrong group, they may need to be placed in a lower group.

There are many advantages to mastery learning from self-concept development to achievement. For the disadvantaged, the biggest asset is simply that the teacher begins instruction at the student's ability level, regardless of the deprivation in earlier years.

Service

The other activity in which our department is involved is service. I have designed a system to be applied to meeting the needs of the disadvantaged. We are now hoping to get permission from a school to apply this system along with the mastery approach.

The system that I designed is in response to New Jersey's mandate for an individual education plan for students who are academically disadvantaged. This system is shown in Figures 1 and 2, but unfortunately there is not sufficient time to describe it. Basically, however, a group education plan (GEP) is established for a particular school, an IEP is set for each student through the use of a computer program, a teacher monitor is assigned, the parents and students are consulted for approval and an IEP is implemented.

While this GEP/IEP system is complex and dependent upon mastery learning, it is only through such a complicated process that the severe problems of the disadvantaged can be overcome. In advocating such a system, teacher educators must be willing to become involved on a long term basis with such a proposal in order to work out the bugs.

CONCLUSION

In conclusion, I feel that the education of the academically disadvantaged will be one of the major issues in the 80's by chance and not choice. As Schwebel (1968) explained in his book, Who Can Be Educated, education is the way to a better life for those living in poverty; but in their inability to meet the expectations of their teachers, many disadvantaged students drop out of school. Such an alternative is not realistic since jobs are not available and times are difficult; however, the future is going to present different circumstances.

If we look at the table on populations (see overhead and Table I attached), we can note that over the next five years our country will experience a great decline in the number of high school students; a decline that is much greater than what we are presently experiencing. We can expect that the youth unemployment problem will virtually disappear and, as this decline moves into the 20 year old bracket, the demand for workers will increase. Thus, the temptation to quit school will be great for the disadvantaged. Educators must not let this happen for in the long run it will only perpetuate the poverty and welfare dependence of this unfortunate segment of our population. At the same time, this decline in the number of students offers us the opportunity to lay aside our recent concerns for overcrowded classrooms and shops, and allows us to concentrate on relevant services and programs aimed at the individual student. Maybe we will be able to provide vocational education to all students who desire it, including all of the disadvantaged.

VOCATIONAL TEACHER EDUCATION ACTIVITIES RELATED TO THE DISADVANTAGED

Teaching Methods

Attitude Change

Leadership Assistance

Service

In-service

Career Education

Inter-disciplinary Cooperation

Research

MASTERY LEARNING OUTLINE

I Diagnostic Test

A. Form ability groups

II Instruction (by ability group)

A. Group instruction
B. Skill building at learning stations
C. Work sheet practice
D. Individual assistance at stations or on practice sheets

III Interim Test (by ability group)

A. Determine each student's deficiency for correction

IV Instruction

A. Group or individual remediation
B. Continue skill building

V Interim Retest

A. Determine each student's deficiency for correction

VI Continue IV and V until deficiencies corrected

VII Mastery Test

A. Successful completion: move to next ability level

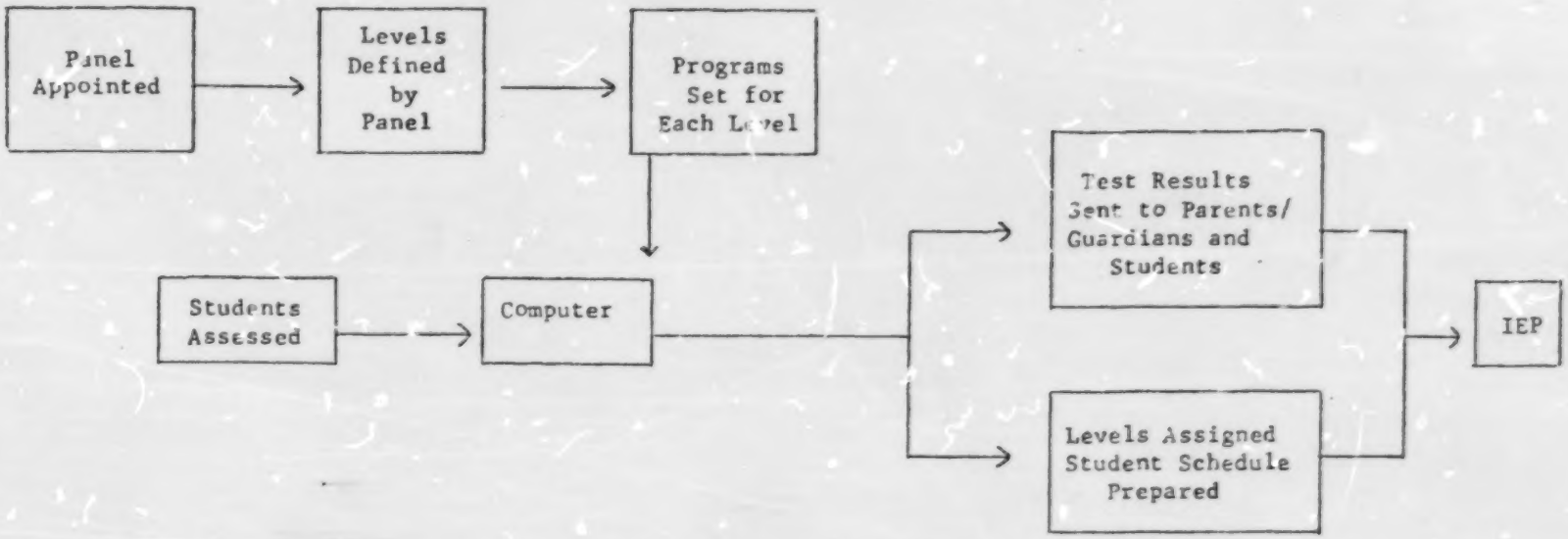

Figure 1

Using the GEP to Prepare an IEP

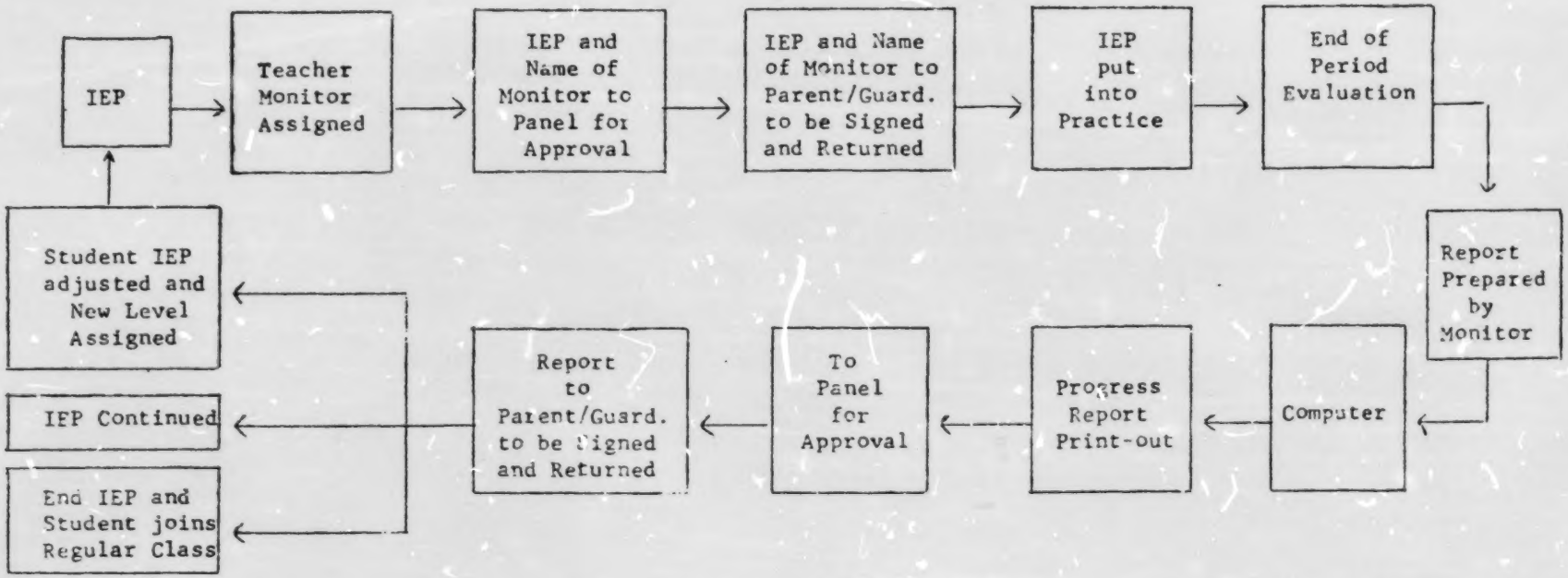
IEP
Teacher Monitor Assigned
IEP and Name of Monitor to Panel for Approval
IEP and Name of Monitor to Parent/Guard. to be Signed and Returned
IEP put into Practice
End of Period Evaluation
Report Prepared by Monitor
Computer
Progress Report Print-out
To Panel for Approval
Report to Parent/Guard. to be Signed and Returned
Student IEP adjusted and New Level Assigned
IEP Continued
End IEP and Student joins Regular Class

Figure 2

Implementation of the IEP

TABLE I

POPULATION CHANGE FOR SELECTED AGE GROUPS

(Numbers in thousands)

AGE	POPULATION JULY 1, 1979	POPULATION CHANGE 1970 TO 1979	
		NUMBER	PERCENT
All races:			
Under 5 years	15,649	-1,514	- 8.8
5 - 13 years	30,647	-6,028	-16.4
14 - 17 years	16,276	+ 422	+ 2.7
18 - 24 years	29,285	+4,830	+19.7
White:			
Under 5 years	12,847	-1,617	-11.2
5 - 13 years	25,316	-5,855	-18.2
14 - 17 years	13,610	+ 29	+ 0.2
18 - 24 years	24,862	+3,550	+16.7
Black:			
Under 5 years	2,386	- 47	- 1.9
5 - 13 years	4,618	- 391	- 7.8
14 - 17 years	2,356	+ 283	+13.7
18 - 24 years	3,820	+1,022	+36.5

NOTE: Taken From: Population Estimates and Projections, Table B. "Age Structure of the Population by Race: July 1, 1979 and April 1, 1970." (1980, p.3)

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